



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,218	08/26/2003	Anri Enomoto	018842.1272	1899

24735 7590 06/01/2006

BAKER BOTTS LLP  
C/O INTELLECTUAL PROPERTY DEPARTMENT  
THE WARNER, SUITE 1300  
1299 PENNSYLVANIA AVE, NW  
WASHINGTON, DC 20004-2400

EXAMINER

GILLAN, RYAN P

ART UNIT	PAPER NUMBER
----------	--------------

3746

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/647,218

Applicant(s)

ENOMOTO ET AL.

Examiner

Ryan P. Gillan

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 3-16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/21/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 5 recites the limitation "said detector is a rotating speed sensor" in the second line of claim 5. There is no mention of a detector in claim 1 from which claim depends and therefore it is insufficient antecedent basis for this limitation in the claim. For purposes of examination it is assumed that the applicant meant to depend claim 3 instead of the stated claim 1.
2. Claim 1 is objected to because of the following informalities: line 10 of claim 1 recites, "being reciprocate within" which is improper grammar and it is suggested to be replaced with --reciprocating within--. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al. (5,624,240) in view of Gleasman et al. (5,513,553). Kawaguchi et al. teach a clutchless refrigerant compressor of a variable displacement type comprising: a compressor housing (2 and 3) having therein a crank chamber (2a), at least one cylinder bore (1b), a suction chamber (3a), and a discharge chamber (3b), said suction chamber and a discharge chamber having an inlet port (4a) and an outlet port (4b),

Art Unit: 3746

respectively, for connecting the compressor to a refrigerating circuit; at least one piston fitted into said at least one cylinder bore and being reciprocate within said cylinder bore (clearly seen in figure 1); a drive shaft (7) extending in the crank chamber in a direction parallel to said cylinder and said piston and rotatably born in the compressor housing (clearly seen in figure 1), said drive shaft having an axial end portion protruding outward from the compressor housing (clearly seen in figure 1 on the left side of the housing), said axial end portion being for connecting an external driving source (9) for receiving a driving power to rotate said drive shaft; a rotor (18) fixedly mounted on said drive shaft within said crank chamber to be rotatable together with said drive shaft; a swash plate (15) disposed around said drive shaft and connected to said rotor by a hinge (18a, 17a, 17b) connection at an angular position, as a hinge angular position, around said drive shaft so as to be rotatable together with said rotor and to be able to inclined from a plane perpendicular to a drive axis of said drive shaft (col. 3 line 59 - col. 4 line 5), said swash plate making a nutating motion with an inclination angle by rotation together with said rotor, the inclination angle of said swash plate being variable between a predetermined minimum angle approximately equal to a zero angle and a predetermined maximum angle (col. 3 line 59 - col. 4 line 5); a connecting mechanism (21) connecting said swash plate to said piston for converting said nutating motion of said swash plate to reciprocating motion of said piston; a control mechanism (25) for controlling said inclination angle of said swash plate together or against said urging member by adjusting a pressure within said crank chamber to thereby control the displacement of said compressor (col. 4 lines 56-64); which further comprising an urging

member (40) providing an urging force to urge the swash plate so that the inclination angle becomes the predetermined minimum angle (col. 3 lines 51-58).

5. Kawaguchi et al. fail to teach a determining means for determining the inclination angle of the swash plate to an initial angle when said drive shaft is stopped without being driven by the external driving source, the initial angle being selected larger than the predetermined minimum angle; and releasing means for releasing the inclination angle determining means when compression work of the compressor is increased after said drive shaft is driven by the external driving source; wherein said inclination angle determining means comprises a stopper mounted on said drive shaft at an initial position on the drive axis to stop said swash plate from changing in inclination due to the urging force when said drive shaft is not driven by said external driving source, for defining an initial angle of the inclination angle of the swash plate, said stopper being variable in the position on said drive axis.

6. Gleasman et al. teach a determining means (172) for determining the inclination angle of the swash plate to an initial angle when said drive shaft is stopped without being driven by the external driving source, the initial angle being selected larger than the predetermined minimum angle (col. 17 lines 12-22); and releasing means (180) for releasing the inclination angle determining means when compression work of the compressor is increased after said drive shaft is driven by the external driving source (col. 17 lines 24-32); wherein said inclination angle determining means comprises a stopper (174) mounted on said drive shaft at an initial position on the drive axis to stop said swash plate from changing in inclination due to the urging force when said drive

Art Unit: 3746

shaft is not driven by said external driving source, for defining an initial angle of the inclination angle of the swash plate, said stopper being variable in the position on said drive axis (col. 17 lines 24-32). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the compressor of Kawaguchi et al. by incorporating the inclination determining means and release means as taught by Gleasman et al. as a means for manually adjusting the inclination of the swash-plate allowing an operator to optimize the efficiency of the compressor for varying loads during operation (col. 17 lines 12-22).

***Allowable Subject Matter***

7. Claims 3-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Kawaguchi et al. (5,865,604) teach a displacement controlling structure for a clutchless variable displacement compressor.
- Michiyuki et al. (5,704,769) teach a swash plate compressor with an angle inclination determining device.


Art Unit: 3746

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan P. Gillan whose telephone number is 571-272-8381. The examiner can normally be reached on 8:30 am - 5:00 pm; Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thorpe can be reached on 571-272-4444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RPG



**TAE JUN KIM**  
**PRIMARY EXAMINER**